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Amendments to the Claims

This listing of the claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims

**Claim 1 (Currently Amended)** A method for identifying a modulator of quorum sensing signaling in bacteria, said method comprising:

providing a cell which is capable of endogenously synthesizing a quorum sensing signal molecule, wherein said cell comprises a regulatory sequence of a quorum sensing controlled gene operatively linked to a gene that generates a detectable signal in response to the quorum sensing signal molecule;

contacting said cell with a test compound, wherein said test compound is other than said quorum sensing signal molecule;

and comparing said detectable signal generated in the presence of said test compound with said detectable signal generated in the absence of said test compound, to thereby identify said test compound as said modulator of quorum sensing signaling in bacteria.

**Claim 2. (Canceled)**

**Claim 3. (Currently Amended)** The method of any one of claims 1, or 75, 76, or 77, wherein said gene that generates said detectable signal comprises a reporter gene that is heterologous to said regulatory sequence.

**Claim 4. (Previously presented)** The method of claim 3, wherein said detectable signal is provided by the transcription of said reporter gene or the translation product of said reporter gene.

**Claim 5. (Original)** The method of claim 4, wherein said reporter gene is selected from the group consisting of *ADE1, ADE2, ADE3, ADE4, ADE5, ADE7, ADE8, ASP3, ARG1, ARG3, ARG4, ARG5, ARG6, ARG8, ARO2, ARO7, BAI1, CAT, CHO1, CYS3, GAL1, GAL7, GAL10, GFP, HIS1, HIS3, HIS4, HIS5, HOM3, HOM6, ILV1, ILV2, ILV5, INO1, INO2, INO4, lacZ, LEU1, LEU2, LEU4, luciferase, LYS2, MAL, MEL, MET2, MET3, MET4, MET8, MET9, MET14, MET16, MET19, OLE1, PHO5, PRO1, PRO3, THR1, THR4, TRP1, TRP2, TRP3, TRP4, TRP5, URA1, URA2, URA3, URA4, URA5* and *URA10*.

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Claim 6. (Original) The method of claim 5, wherein said reporter gene is *lacZ* or *GFP*.

Claim 7. (Currently Amended) The method of any one of claims 1-~~or~~ 75, 76, or 77, wherein said cell does not express said quorum sensing signal molecule.

Claim 8. (Original) The method of claim 7, wherein said quorum sensing signal molecule is produced by a second cell.

Claim 9. (Currently Amended) The method of any one of claims 75-1, 75, 76, or 77 wherein said cell is a prokaryote or eukaryote.

Claim 10. (Original) The method of claim 9, wherein said cell is a bacterium.

Claim 11. (Original) The method of claim 8, wherein said second cell is a prokaryote or eukaryote.

Claim 12. (Original) The method of claim 11, wherein said second cell is a bacterium.

Claim 13. (Currently Amended) The method of claim 10 ~~or 12~~, wherein said bacterium is a gram negative bacterium.

Claim 14. (Original) The method of claim 13, wherein said gram negative bacterium is *Pseudomonas aeruginosa*.

Claim 15. (Original) The method of claim 10, wherein said bacterium is a mutant strain of *Pseudomonas aeruginosa* which comprises a regulatory sequence of a quorum sensing controlled gene operatively linked to a reporter gene, wherein in said mutant strain, *lasI* and *rhlI* are inactivated.

Claim 16. (Original) The method of claim 12, wherein said second cell is wild type *Pseudomonas aeruginosa*.

Claim 17. (Currently Amended) The method of any one of claims 1, 75, 76, or 77, wherein said quorum sensing controlled gene is endogenous to said cell.

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Claim 18. (Original) The method of claim 10, wherein said quorum sensing controlled gene encodes a virulence factor.

Claim 19. (Original) The method of claim 10, wherein said quorum sensing controlled gene encodes a polypeptide which inhibits a bacterial host defense mechanism.

Claim 20. (Original) The method of claim 10, wherein said quorum sensing controlled gene encodes a polypeptide which regulates biofilm formation.

Claim 21. (Currently Amended) The method of any one of claims 1, 75, or 77, wherein said quorum sensing signal molecule is an autoinducer of said quorum sensing controlled gene.

Claim 22. (Original) The method of claim 21, wherein said autoinducer is a homoserine lactone.

Claim 23. (Original) The method of claim 22, wherein said test compound is a homoserine lactone analog.

Claim 24. (Currently Amended) The method of any one of claims 1, 75, 76, or 77, wherein said modulator ~~inhibits~~ modulates ~~an enzyme involved in the synthesis by said bacterium~~ of said quorum sensing signal molecule by said bacterium.

Claim 25. (Currently Amended) The method of any one of claims 1, 75, 76, or 77, wherein said modulator ~~inhibits~~ modulates reception of said quorum sensing signal molecule by said bacterium.

Claim 26. (Currently Amended) The method of any one of claims 1, 75, 76, or 77, wherein said modulator scavenges said quorum sensing signal molecule.

Claims 27-74 (Canceled)

Claim 75. (Previously presented) A method for identifying a modulator of quorum sensing signaling in bacteria, said method comprising:  
providing a cell which comprises a quorum sensing controlled gene wherein said quorum sensing controlled gene comprises a nucleotide sequence selected from the group consisting of

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SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35 and SEQ ID NO:36, operatively linked to a gene that generates a detectable signal in response to a quorum sensing signal molecule;

contacting said cell with said quorum sensing signal molecule in the presence and absence of a test compound;

and comparing said detectable signal generated in the presence of said test compound with said detectable signal generated in the absence of said test compound, to thereby identify said test compound as said modulator of quorum sensing signaling in bacteria.

**Claim 76. (New)** A method for identifying a modulator of quorum sensing signaling in bacteria, said method comprising:

providing a cell which comprises a regulatory sequence of a quorum sensing controlled gene operatively linked to a gene that generates a detectable signal in response to a quorum sensing signal molecule;

contacting said cell with 3-oxo-C12 homoserine lactone in the presence and absence of a test compound;

and comparing said detectable signal generated in the presence of said test compound with said detectable signal generated in the absence of said test compound, to thereby identify said test compound as said modulator of quorum sensing signaling in bacteria.

**Claim 77. (New)** A method for identifying a modulator of quorum sensing signaling in bacteria, said method comprising:

providing a cell which comprises a regulatory sequence of a quorum sensing controlled gene operatively linked to a gene that generates a detectable signal in response to a quorum sensing signal molecule;

contacting said cell with said quorum sensing signal molecule in the presence and absence of a test compound;

and detecting a change in said detectable signal to thereby identify said test compound as said modulator of quorum sensing signaling in bacteria.

**Claim 78. (New)** The method of claim 24, wherein said synthesis is inhibited.

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- Claim 79. (New) The method of claim 25, wherein said reception is inhibited.
- Claim 80. (New) The method of claim 24, wherein said synthesis is induced.
- Claim 81. (New) The method of claim 25, wherein said reception is induced.
- Claim 82. (New) The method of claim 12, wherein said bacterium is a gram negative bacterium.